Effect of Various Sources of Sulfur on Yield and Quality of Alfalfa and Soybean. (S04-chen151250-Poster)

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Abstract:

Sulfur deficiencies in soil are expected to increase due to growth of high yielding crop varieties, use of S-free fertilizers and removal of S from industrial emissions. Sulfur effects on the growth of crops in Ohio have not been extensively researched. Agricultural gypsum, elemental S, two types of flue gas desulfurization (FGD) by-products (containing either vermiculite or perlite and created when S is scrubbed during burning of coal), and N-Viro Soil (a biosolids and FGD mixture) were applied at 0 to 67 kg S/ha to soils in different regions of Ohio. Growth of a new planting of alfalfa (Medicago sativa L.) was increased 5 % to 40 % by the treatments compared to the untreated control. Mean alfalfa yield in five established alfalfa stands was increased 5% with S treatments compared to the untreated control which was significant at the $P < 0.05$ level. Soybean (Glycine max L.) yield was increased 3.4 % to 11.6 % in 2000 but did not respond to S treatment in 2001. Soil and plant analyses were made to assess potential adverse environmental impacts and none were observed. N-Viro and FGD were found to be excellent substitutes for gypsum as S sources for enhancing crop production.

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Presentation Information:

Presentation Date: Wednesday, November 13, 2002
Presentation Time: 9:00-11:00 am
Poster Board Number: 2324

Keywords:

flue gas desulfurization by-product, N-Viro, gypsum, sulfur nutrient